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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/032,973

10/24/2001

Thomas Brinz

10191/2064

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26646

7590

12/04/2002

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EXAMINER

DEJESUS, LYDIA M

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,973

Applicant(s)

BRINZ, THOMAS

Examiner

Lydia M. De Jesús

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the elements listed below must be shown or the feature(s) canceled from the claim(s):

- a generator for generating at least one of the electric and magnetic field;
- an imaging unit;
- a unit for varying at least one of the electric field and the magnetic field;
- a unit for periodically varying at least one of the electric field and the magnetic field;
- an arrangement for performing temperature control of the substrate;
- a measurement unit for measuring a change in shape of the test object; and
- an optical measurement unit for measuring a change in at least one of a shape and a length.

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete. 37 CFR 1.83(b) reads as follows:

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When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

In this case, the illustration provided by the drawings is considered incomplete because elements necessary for the operation of the device have not been illustrated.

According to the disclosure, and as recited in claim 1, an electric or magnetic field is applied by a generator to the material under test but said generator is not shown in the drawings.

Also, the disclosure and claim 9 set forth the use of a temperature control arrangement for the substrate that has not been illustrated in the drawings.

Furthermore, the claimed apparatus is a device for testing a material that changes shape when at least one of an electric and a magnetic field is applied, hence the illustration of the measurement unit provided for detecting changes in the shape of the material is considered essential for understanding the invention.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1:

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Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the generator and the material being tested.

Claim 1 is also rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a measurement unit for measuring a change of shape of the material being tested or test object. It is noted that the preamble of claim 1 is directed to a device for testing a material that changes shape, whereas the body of the claim fails to set forth any structure for testing the change of shape of the material.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between the imaging unit and the remaining elements of the claimed device.

Claims 6 and 7 are confusing because the language of said claims fail to set forth a structural relationship between the structural elements of the device previously cited in claim 1 and the limitations recited on said claims.

The limitation “an electric contacting is arranged on the material” makes claim 10 confusing because it appears to be an incomplete statement unless the term “electric contacting”

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is intended to identify a element of the claimed device. Please identify the element corresponding to this term or further clarify the claim language.

With respect to claims 11 and 12: Claim 11 is rejected for omitting the structural relationship between the detection unit and structural elements of the claimed device previously cited in claim 1. Both claim 11 and claim 12 recite the limitation “heating of the material attributed to an electric current”, since it is unclear where said electric current is originated this limitation seems to imply a structural element which is not clearly set forth in the claims. Please clarify.

On claim 15, it is unclear whether the limitation “a test object” refers to the material tested by the device. Examiner suggests using the same terminology consistently throughout the claims in order to avoid confusion.

On claim 16, the limitation “for measuring a change in at least one of a shape and a length” appears to be an incomplete statement that makes the claim language confusing.

Claims 2-4, 8,9, and 13-14 have been rejected due to their dependence upon the language of claim 1.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1-3, 7-8 and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Heyman et al. [hereinafter Heyman].

Heyman discloses a device for testing a material i.e., for identifying flaws in a sample corresponding to disbands or inclusions, comprising: a generator [14] for generating at least one of an electric field or a magnetic field (see lines 44-46 of column 3); and at least one thermal sensor [16].

Said thermal sensor includes a radiation detector i.e., pyroelectric detector or infrared detector, for detecting electromagnetic radiation (see lines 5-27 of column 3). Said thermal sensor has a local resolution (see lines 56-67 of column 4, describing the collection of data from a bonded region and then from a disbonded region).

The device further includes a unit for varying the magnetic field, in this case a capacitive recharge circuit [24] (see lines 59 of column 3 through line 15 of column 4). Said unit for varying the magnetic field is considered capable of periodically varying the magnetic field, in response to commands from the microprocessor [21] and hence, in a broad sense, Shultz is considered to disclose the limitations of claim 7.

As described in lines 36-60 of column 5, the material to be tested is arranged on a substrate i.e, three layered laminated structure, and a plurality of different test areas, including bonded areas and disbonded areas, are arranged in a grid pattern on the substrate.

With respect to the intended use of the apparatus, i.e., to test a material that changes shape when at least one of an electric or magnetic field is applied or testing a piezoactive material: It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art

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apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

8. Claims 1, 2, 6, 8, 9, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Schultz et al. [hereinafter Schultz].

Schultz discloses the preparation of a substrate having an array/grid of diverse materials in predetermined regions thereof and screening of these material for useful properties i.e., thermal, magnetic, electric, chemical, ect. (see Table I in column 30)

The screening device presented for example D, described in line 27 of column 38 through line 28 of column 41, comprises: a generator [liquid helium cryogenic system with a superconducting magnet] for generating a magnetic field; and at least one thermal sensor i.e., 4-probe contact method, for detecting a change in the temperature of the material(see lines 15-27 of column 41).

Schultz discloses the screening of magnetoresistance of the materials as a function of magnetic field at fixed temperature and also as a function of temperature under a given magnetic field (see Figures 19A-B and 20A-B), hence it is considered inherent that the device includes a unit for varying the magnetic field and an arrangement for temperature control of the substrate.

With respect to the intended use of the apparatus, i.e., to test a material that changes shape when at least one of an electric or magnetic field is applied or testing a piezoactive material: It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz in view of Fujiwara et al. [hereinafter Fujiwara].

Schultz discloses a device as claimed, as stated above in paragraph 8, but fail to explicitly disclose an imaging unit or optical measurement unit for measuring a change in at least one of a shape and length of the material being tested.

However, Schultz discloses thermal expansion among the properties to be screened. Fujiwara teaches the use of an imaging unit/optical measurement unit [transmitter [2] + receiver [3]] in combination with a thermometer, for measuring a change in shape or length in sample of a material being tested.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add to the screening device of Schultz a thermal expansion measuring arrangement, as suggested by Shultz, including an imaging unit/optical measuring unit for measuring a change in the shape or length of a sample of the material being tested, as taught by Fujiwara, in order to provide further characterization of the properties of the various materials on the test substrate.

11. Claims 5, and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz in view of Holcomb.

Schultz discloses a device as claimed, as stated above in paragraph 8, but fails to explicitly disclose an electric contacting arranged on the material and a detection unit for detecting a portion of a heating of the material attributed to an electric current.

However, Holcomb shows in Figure 6, an arrangement for measuring the differential reflectance of a material resulting from a change in the electric field applied to the material. Said arrangement includes a generator [28] for generating a variable electric field, an electric contacting [34] arranged on the material and an imaging unit [CCD camera].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add to the screening device of Schultz an arrangement including an electric field generator and an electric contacting arranged on the material, and an imaging unit, as taught by Holcomb, in order to further characterized the materials on the test substrate according to their electric properties.

With respect to claims 11 and 12: The device disclosed by Schultz already discloses a thermal sensor and hence, in a broad sense, it is considered that the device resulting from the combination of Schultz and Holcomb includes a detection unit for detecting a portion of a heating of the material attributed to an electric current, said detection unit corresponding to the thermal sensor of Schultz and it is further considered that said combination includes an analyzer/processing unit capable of compensating parameters to be determined with the measured temperature increase attributed to the electric current.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takamatsu et al. disclose a method for determining transition temperature of a

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dielectric. Vettori de Almeida Rodrigues discloses a differential dilatometer. Mullins, Jr. et al. disclose a system and method for testing devices sensitive to a magnetic field. Maris discloses a method and apparatus for measurement of mechanical properties and electromigration of thin films. McFarland et al. disclose an optical system for rapid screening of libraries of different materials. Tardy discloses the use of an optical fiber thermal sensor for detecting changes in an electric or magnetic field by covering the optical fiber thermal sensor with piezoelectric or magnetorestrictive material. JP03245048 A discloses a related apparatus.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lydia M. De Jesús whose telephone number is (703) 306-5982. The examiner can normally be reached on 12:30 to 8:00 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (703) 308-3875. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.



Diego F.F. Gutierrez
Supervisory Patent Examiner
Technology Center 2800

LDJ
December 2, 2002



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: ASSISTANT COMMISSIONER FOR PATENTS

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER

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DATE MAILED:

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